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613.ACUTE MYELOID LEUKEMIAS: CLINICAL AND EPIDEMIOLOGICAL

Hyperleukocytosis in Patients with Acute Myeloid Leukemia Characteristics and Outcome, a Single-Center Experience

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Background

Hyperleukocytosis is the condition where Acute myeloid leukemia (AML) is presented with white blood cell counts equal to or greater than 100,000. A small proportion of AML patients are presented with this condition which is associated with significant morbidity and mortality caused by related serious complications including leukostasis, tumor lysis syndrome (TLS) and disseminated intravascular coagulation. Hyperleukocytosis is a hematological emergency requiring immediate intervention. In this retrospective study we describe the general characteristics, cytogenetics, mutational profile, treatment given, and outcome of AML patients having hyperleukocytosis at diagnosis.

Methods

Data were retrieved from the clinical data base of our tertiary cancer center (National Center for Cancer Care and Research, Doha, Qatar). All patients with AML diagnosed during the period January 2017 through December 2021 were included.

Results

A total of 186 AML patients were included. Twenty-one patients (11.5%) were presented with hyperleukocytosis. Males were more predominant 13/21 (62 %) and more than half of the patients had an Asian origin 52%. The median age for the group was 40.0 years (18-89). Complete blood count (CBC) showed median hemoglobin of 9.2g/dl, white blood cells of $176 \times 10^3/\text{uL}$ and platelets $6 \times 10^3/\text{uL}$. the median percentage of the blast in the peripheral blood was 71 % and 72 % in bone marrow. Bone marrow cellularity was high in all the cases 100%. Bone marrow dysplasia was assessed with dysgranulopoiesis observed in 24%. All patients had de novo AML. In these patients the diploid KT was most common cytogenetic findings (57%), followed by CBF recurrent cytogenetics abnormalities in 4 patients (19%). *FLT 3-ITD* was positive in 7 patients (33%) and *NPM1* mutation in 5 patients (28%). Hydroxyurea (HU) was used as cytoreductive therapy in 90% of patients. More than half of the patients 11/21 (52%) were admitted to intensive care unit (ICU). One patient had CNS relapse. Seven patients (33%) underwent allogeneic bone marrow transplant. Progression occurred in 6 patients 28 (median 1.4 years) and Overall survival in this cohort was 76 % (median 1.9 year) and the average duration of follow-up of 24.8 months. Early death within 30 days observed, with median time to death 4 days (1-12) among those who died.

Conclusion

One of ten AML patients are presented with hyperleukocytosis. Most of our AML patients with hyperleukocytosis were young males. This is most probably related to the young general population in our country. All patients had hypercellular marrow with high blast percentage. Diploid Karyotype, CBF rearrangements, *FLT 3-ITD* mutation and *NPM1* mutation were frequent in this

cohort. Most of the patients developed complications requiring intensive care admission. Hydroxyurea was the first choice for cytoreduction. Both disease progression and mortality were relatively high (28% and 24 % respectively) and occurred very early, within less than a week from presentation. Early diagnosis and immediate management are mandatory to tackle the complications of this hematological emergency and improve morbidity and mortality.

Disclosures No relevant conflicts of interest to declare.

Factor	Level	Value
N		21
AGE , mean (SD)		40.8 (11.8)
SEX	F	8 (38%)
	M	13 (62%)
ETHINITY	asian	11 (52%)
	arab	6 (29%)
	others	4 (19%)
HB, mean (SD)		9.2 (3.0)
WBC, mean (SD)		176.9 (87.2)
PLT, mean (SD)		67.8 (60.0)
AML TYPE	de novo	21 (100%)
BLAST, mean (SD)		71.5 (24.7)
BM Blast, mean (SD)		72.6 (23.7)
Cellularity (hyper, no)	hyper	21 (100%)
dyserythropoiesis	Y	1 (5%)
	no	20 (95%)
Dysgranulopoiesis	Y	5 (24%)
	no	16 (76%)
Dysmegakaryopoiesis	Y	1 (5%)
	no	20 (95%)
Cytogenetics	CBF	4 (19%)
	Diploid	1 (5%)
	MLL	1 (5%)
	OTHERS	2 (10%)
	complex	1 (5%)
	diploid	12 (57%)
FLT-3	Negative	11 (61%)
	Positive	7 (39%)
NPM-1	Negative	13 (72%)
	Positive	5 (28%)
2 line (FLAG based =1,0)	0	1 (25%)
	1	3 (75%)
SCT	N	14 (67%)
	Y	7 (33%)
alive or dead	alive	16 (76%)
	dead	5 (24%)

Figure 1

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